

REMARKS

Very thanks for Examination's suggestion and thanks for finding some citations about the present invention, thereby, the applicant may know more information about the invention. This case has been carefully reviewed and analyzed in view of the office action. All details of the reference prior arts are fully considered and compared with the present invention.

Responsive to the objections and rejections made of the Examiner in office action. We have amended the claims. The errors disclosed in that office action has been corrected according to the Examiner's indications disclosed in the official action.

Indeed the citations disclose some features of the present invention, and the applicant agrees with these viewpoints, however applicant discovers that some main features of the present invention is not disclosed in the citation which can form the novelty and inventive step of the present invention.

Firstly, applicant decides to amend the present invention, which firstly amends some errors pointed out by the Examiner in the Office action, and secondly, the amendments can more illustrate the novelty of the present invention. The applicant decide to cancel Claims 1 to 7, without prejudice or disclaimer of the subject matter thereof, and add new claims 8 to 10. The added new claim 8 is the combination of the original claims 1, 2 and 3, the added new claim 9 is the combination of the original claims 1, 2 and 4 and the added new claim 10 is the combination of the original claims 1, 2 and 6. Thereby, it is assured that the new claims are based on the original claims. The relation of the new claims with respect to the original claims are shown in the following

Claim 8 (New claim) ~~is~~ A locking structure of a unidirectional spanner comprising:

a spanner body 10 having a receiving chamber 11 at one

end thereof and two ~~at least one~~ directional control groove 13 aside the receiving chamber 11 and communicated with the receiving chamber 11;

a toothless ratchet 20 receiving in the receiving chamber 11;

~~at least one~~ two directional control devices receiving in the two ~~at least one~~ directional control grooves; each of the ~~at least~~ directional control devices being formed by a directional control unit 31 and an elastomer 32; the directional control unit 31 locking the toothless ratchet;

wherein if the spanner body 10 moves, a reverse force will apply to the toothless ratchet 20; when the reverse force causes the directional control unit to move away from the elastomer, the toothless ratchet 20 will be locked by the directional control unit so that the toothless ratchet 20 rotate synchronously with the spanner body 10; when the reverse force causes ~~that~~ the directional control unit to ~~can~~ compress the elastomer, the toothless ratchet 20 will rotate independently; ~~namely not rotate synchronously with the spanner body 10.~~

~~3. The locking structure of a unidirectional spanner as claimed in 1, wherein there are two directional control grooves 13 and two directional control units 31.~~

~~4. The locking structure of a unidirectional spanner as claimed in 1, wherein each directional control unit is a rectangular cylinder; and a corner of each rectangular cylinder~~ is faced to the receiving chamber 11.

Claim 9 (New claim) ~~4~~ A locking structure of a unidirectional spanner comprising:

a spanner body 10 having a receiving chamber 11 at one end thereof and two ~~at least one~~ directional control groove 13 aside the receiving chamber 11 and communicated with the receiving chamber 11;

a toothless ratchet 20 receiving in the receiving chamber 11;

~~at least one~~ two directional control devices receiving in the two ~~at least one~~ directional control grooves; each of the ~~at least~~ directional control devices being formed by a directional control unit 31 and an elastomer 32; the directional control unit 31 locking the toothless ratchet;

wherein if the spanner body 10 moves, a reverse force will apply to the toothless ratchet 20; when the reverse force causes the directional control unit to move away from the elastomer, the toothless ratchet 20 will be locked by the directional control unit so that the toothless ratchet 20 rotate synchronously with the spanner body 10; when the reverse force causes ~~that~~ the directional control unit to ~~can~~ compress the elastomer, the toothless ratchet 20 will rotate independently; ~~namely not rotate synchronously with the spanner body 10.~~

~~5. The locking structure of a unidirectional spanner as claimed in 1, wherein each directional control unit is a hexagonal cylinder.~~

~~6. The locking structure of a unidirectional spanner as claimed in 1, wherein each directional control unit is a polygonal cylinder.~~

Claim 10 (New claim) ~~4~~ A locking structure of a unidirectional spanner comprising:

a spanner body 10 having a receiving chamber 11 at one end thereof and two ~~at least one~~ directional control groove 13 aside the receiving chamber 11 and communicated with the receiving chamber 11;

a toothless ratchet 20 receiving in the receiving chamber 11;

~~at least one~~ two directional control devices receiving in the two ~~at least one~~ directional control grooves; each of the ~~at least~~ directional control devices being formed by a directional control unit 31 and an elastomer 32; the directional control unit 31 locking the toothless ratchet;

wherein if the spanner body 10 moves, a reverse force will apply to the toothless ratchet 20; when the reverse force causes the directional control unit to move away from the elastomer, the toothless ratchet 20 will be locked by the directional control unit so that the toothless ratchet 20 rotate synchronously with the spanner body 10; when the reverse force causes ~~that~~ the directional control unit to ~~can~~ compress the elastomer, the toothless ratchet 20 will rotate independently; ~~namely not rotate synchronously with the spanner body 10.~~

~~7. The locking structure of a unidirectional spanner as claimed in 1,~~ wherein each directional control unit is a cylinder having a round cross section and having ~~has~~ a chamfered surface; and a normal line of the surface is tilt from a normal line of the round cross section.

In the following, we will discuss the novelty of the present invention.

(A) For the new claim 8.

New claims 8 is the combination of the original claims 1, 2 and 3 and we add some confinement to the original claim 3 so as to form the new claim 8, however the claim 8 claims an object illustrated in Fig. 11 of the present invention.

As the suggestion in the office action, Examiner considers that the original claims 1 and 2 are not novel. The original claim 1 is disclosed in the citations USP870014, USP1169007 and USP2487987 and the original claims 2 are disclosed in the citation USP5417129 and USP3557816. However we agree with these viewpoints. And we also agree with the viewpoint that each directional control unit is a rectangular cylinder (disclosed in the original claim 3), which also disclose by the citation USP5417129.

However in this amendment, we add a confinement that “a corner of each rectangular cylinder is faced to the receiving chamber 11.” to the original claim 3 and we combine the claims 1, 2 and 3 with the new confinement of the claim 3 so as to form a new claim 8.

Referring to Fig. 11 of the present invention, it is illustrated that in Fig. 11, a corner the rectangular cylinder is faced to the receiving chamber 11”. In the citation ‘129, it is illustrated in Fig. 2 of the citation, it is a plane surface of the rectangular cylinder 50 facing toward the receiving chamber 11. Thereby the new confinement makes the present invention being different from the citation.

The corner of the rectangular cylinder facing to the receiving chamber makes a small contact area to the ratchet wheel so that the wearing to the cylinder is smaller. As one corner is worn, the orientation of the cylinder is changed and thus the rectangular cylinder can be used for a longer time.

(B) For the new claim 9

New claim 9 is combination of the original claims 1, 2 and 4, however the claim 9 claims an object illustrated in Fig. 10 of the present invention.

Those about the original claims 1 and 2 are discussed in the part (A) and thus the details will not be further described here.

However in the new claim 9, the original claim 4 is added, which describes that each directional control unit 31 is a hexagonal cylinder. However this feature is not disclosed in any of the citation. Thereby this constructs a novelty to the new claim 9.

The hexagonal cylinder has a small area to contact the ratchet and there are six orientations being used to contact the ratchet wheel.

(C) For the new claim 10

New claim 10 is combination of the original claims 1, 2 and 6 and we add some confinement to the original claim 6 so as to form the new claim 10, however the claim 10 claims an object illustrated in Figs. 8 and 9 of the present invention.

Those about the original claims 1 and 2 are discussed in the part (A) and thus the details will not be further described here.

In the new claim 10, we add the new confinement of “each directional control unit is a cylinder having a round cross section and having a chamfered surface; and a normal line of the surface is tilt from a normal line of the round cross section.” This confinement makes the surface is inclined to the axis of the cylinder so that the chamfered surface in element 31 is like that shown in Fig. 8 of the present invention.

However in Fig. 5 of the citation ‘129, the chamfered surface is parallel tot the axis of the cylinder 50.

The round cylinder make the cylinder has a moving margin in the groove and thus the operation of the ratchet is smooth, while the chamfered area make a sufficient area to the ratchet

(D) RESULT


From our experience, different shapes of cylinders make different effects to the spanners so that the spanners can be used to various conditions as required. Thus the shapes of the cylinders are meaningful which construct the novelty of the present invention.

Since in above discussion, it is apparent that no prior art has the features of the present invention, especially in new claims 8, 9 and 10. Furthermore, as we know that no other prior art has features of the present invention. Thus, the present invention is novel and inventive.

Applicant requests and authorizes Examiner to amend the claims of the present invention so that the claim can match the requirement of U. S. Patent. Attentions of Examiner to this matter is greatly appreciated.

It is now believed that the subject Patent Application has been placed in condition for allowance, and such action is respectively requested.

Respectfully submitted.


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